

We claim:

1. A method of delivering a biologically active molecule to a cell, comprising contacting the cell with (a) a biologically active molecule and (b) a cellular delivery polymer.
2. The method of claim 1, wherein the cellular delivery polymer is one or more polymers selected from the group consisting of polyamides, dendritic macromolecules, and carbohydrate-containing degradable polyesters.
3. The method of claim 1, wherein the biologically active molecule is at least one nucleic acid molecule or at least one polypeptide or both.
4. The method of claim 1, wherein the polypeptide or the nucleic acid and the cellular delivery polymer are admixed before the contacting.
5. The method of claim 4, wherein the cellular delivery polymer forms a polyplex with the biologically active molecule.
6. The method of claim 4, wherein the biologically active molecule is a nucleic acid.
7. The method of claim 6, wherein the nucleic acid is an oligonucleotide.
8. The method of claim 7, wherein the nucleic acid is selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA:RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof.
9. A kit comprising at least one biologically active molecule and at least one cellular delivery polymer.
10. The kit of claim 9, wherein the biologically active molecule is a nucleic acid.
11. The kit of claim 10, wherein the nucleic acid is selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA:RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof

12. A complex comprising a cellular delivery polymer and an agent that is desirably taken up by cells, wherein the cellular delivery polymer comprises a polycationic polymer structure.
13. The complex of claim 12, wherein the delivery polymer comprises one or more polymers selected from the group consisting of polyamides, dendritic macromolecules, and carbohydrate-containing degradable polyesters.
14. The complex of claim 12, wherein the biologically active molecule is at least one nucleic acid molecule or at least one polypeptide or both.
15. The complex of claim 14, wherein the cellular delivery polymer forms a polyplex with the biologically active molecule.
16. The complex of claim 14, wherein the biologically active molecule is a nucleic acid.
17. The complex of claim 12, wherein the nucleic acid is an oligonucleotide.
18. The complex of claim 17, wherein the nucleic acid comprises from about 5 bases to about 200 kilobases.
19. The complex of claim 18, wherein the nucleic acid is selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA:RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof.
20. The complex of claim 19, wherein the nucleic acid comprises one or more chemical modifications.
21. The complex of claim 19, wherein the nucleic acid is the agent that is desirably taken up by cells.
22. A composition comprising the molecular complex of claim 12.
23. A cell comprising the molecular complex of claim 12.
24. A composition comprising the cell of claim 23.
25. A container comprising the molecular complex of claim 12.

26. A pharmaceutical composition comprising the molecular complex of claim 12 and a pharmaceutically acceptable excipient or carrier.
27. The pharmaceutical composition of claim 26, wherein the biologically active molecule is at least one nucleic acid molecule or at least one polypeptide or both.
28. The pharmaceutical composition of claim 27, wherein the biologically active molecule is at least one nucleic acid selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA:RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof.
29. The pharmaceutical composition of claim 26, wherein the biologically active molecule is a polypeptide.
30. A method of treating an individual suffering from a disease or disorder, the method comprising contacting the individual with the complex of claim 12, the composition of claim 24, or the pharmaceutical composition of claim 26.
31. A method of providing gene therapy to an individual in need thereof, comprising contacting the individual, or cells therefrom, with the complex of claim 12, the composition of claim 24, or the pharmaceutical composition of claim 26.
32. The compound according to any one of the preceding claims, wherein said compound is an antisense oligonucleotide composed of DNA or RNA or an analogue or mimic of DNA or RNA including but not restricted to the following: methylphosphonate, N3'->P5'-phosphoramidate, morpholino, peptide nucleic acid (PNA), locked nucleic acid (LNA), arabinosyl nucleic acid (ANA), fluoro-arabinosyl nucleic acid (FANA) methoxy-ethyl nucleic acid (MOE).